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A WEEKLY EPITOME
OF
CURRENT MEDICAL LITERATURE.

MEDICINE.

(72) Muscular Atrophy Secondary to Joint Disease. MM. S. DUPLAY and M. CAZIN (*Archives Générales de Médecine*, January, 1891) first review the various theories of mechanical stretching, functional inactivity, propagation of the inflammation to the muscles, and vasomotor change put forward to account for this condition—all of which are unsatisfactory. Most have accepted the reflex theory of Vulpian, namely, that the irritation of the ends of the articular nerves tells back on the spinal centres, and thence upon the centres of origin of the muscular nerves. This accounts well for the rapid development of the atrophy, the absence of the reaction of degeneration, and the simple atrophy found in the muscles. In one case M. Klippel found degenerative atrophy in the muscles and changes in the corresponding anterior horn, but this is altogether exceptional. One may believe with Charcot that there are two kinds of this muscular atrophy—one functional, with simple atrophy; the other more serious, with organic lesions in the cord and degenerative atrophy in the muscles. The authors then recount their experiments on dogs and rabbits. The inflammation was set up by injecting nitrate of silver or tincture of iodine into the joint or by the actual cautery. The muscles weighed always showed a loss—in one or two instances as much as 40 per cent.—usually in proportion to the duration of life (4 to 51 days). In Experiment 10, the inflammation was set up by wrenching the joint, and the animal was allowed to live for a year. Histological examination showed a simple atrophy in the muscles, and the nerves were all healthy except the articular branches. Here there was a diminished number of nerve fibres, a few of which were degenerate, the axis cylinders having disappeared. The perineurium showed inflammatory change, but the endoneurium was unaffected. In Experiment 10, however, the muscular branches were also diseased. The roots of the nerves were healthy, and no change was found in the spinal cord. The microscopic examination was most thorough and exhaustive, similar parts from the healthy and diseased sides being compared; thus, the only lesion was that in the articular nerves. This agrees thoroughly with the doctrine of Vulpian. The predominance of the change in the extensor muscles may be explained by the relation of the articular nerves to the nerves supplying these muscles. This cannot be said to take place without the intervention of the cord—and, indeed, a connection between the centres of the articular and muscular nerves in the cord may be assumed. The following conclusions may be drawn: (1) the atrophy of the muscle fibres is a simple atrophy; and (2) this atrophy can only be explained by a simple reflex, set up by the irritation of the terminal filaments of the articular nerves. The pathogeny clearly pointed out by Vulpian has thus been minutely demonstrated by the facts of morbid anatomy.

(73) Infective Jaundice. M. GIRODE (*Archives Générales de Médecine*, January, 1891) says that the idea of icterus gravis being an infective disease is based on clinical and pathological analogies, such, for instance, as the fever, typhoid state, change in certain organs and the condition of the blood. That it is not necessarily of microbic origin is evident from cases of acute phosphorus poisoning. To establish the infective theory, the organism must be found and its behaviour and specificity ascertained. Only a few investigations have been made, and among others those of MM. Boinet and Boy-Teissier, who examined the blood from a patient, and found micro-organisms single, double, and in chains. These organisms were also present in the organs after death. M. Girode then relates the following case: A woman, aged 32, four months pregnant, was seized with shivering, fever, vomiting, and diarrhœa. On the third day she aborted; on the 4th she was jaundiced and semi-unconscious. The stools were yellow ochrey, and the urine contained albumen. Temperature 40.3° C. On the fifth there was hæmatemesis and epistaxis. No special uterine symptoms. On the sixth petechial eruption with bullæ; on the seventh deep coma and death. The diagnosis of icterus gravis could not be doubted, but what was its nature? The blood examined during life showed an increase in white cells, and numerous micrococci, single, double, and in masses. Cultivation produced colonies of the staphylococcus aureus. Thus the blood was infected with a pyogenic organism. The same results were obtained by careful experiments with the urine and with fluid from the bullæ. Guinea-pigs and rabbits inoculated died rapidly, with signs of general infection, and their blood contained staphylococci. The chief pathological changes in the above-mentioned case were: (1) many miliary abscesses in the heart, lungs, and kidneys, and also in the walls of the uterus; (2) enlargement of the spleen; the liver was also enlarged and its structure indistinct; (3) colonies of staphylococci in the infiltrations of leucocytes, in the miliary abscesses, and in the walls

of the vessels. The interior of the uterus showed no noteworthy change. The two chief facts in the case were the symptoms of icterus gravis and the infection with the staphylococcus. M. Girode does not think it was a case of pyæmia with jaundice. The clinical picture was certainly not that of pyæmia. There was nothing in the uterus to set up pyæmia. If this be granted, the doctrine of infection, disentangled from narrow anatomical terms, such as acute yellow atrophy and disintegration of the hepatic cells, explains many observations, at first sight very unlike each other.

(74) Insanity as a Symptom of Bright's Disease.

Dr. Alice Bennett (*Alienist and Neurologist*, October, 1890) draws attention to the fact that renal disease is much more common in the insane than is generally supposed. Her experience has led her so far as to pronounce that uræmic poisoning is one of the most frequent causes of insanity, and that the most prominent and constant symptom of the toxic action on the cerebral cortex is some form of mental pain, ranging from simple depression, through all grades and varieties of melancholia, to acute delirious mania. Further, the motor centres are specially liable to be affected, as shown by the constant restlessness, less often by convulsions, or choreic or cataleptoidal states. In fifty-nine patients under her care at the Morristown Lunatic Hospital, she found albumen or casts in the urine, or *post-mortem* evidence of kidney disease. Short records of these cases are included in her paper.

(75) Visceral Neuritis.

Dr. J. Ferguson contributes brief notes (*Alienist and Neurologist*, October, 1890) of a case in which this affection developed during convalescence from *la grippe*. Paroxysms of agonising pain (locality not stated) were the chief symptoms; they were most frequent and severe in the morning, and were wholly beyond relief. Death occurred after ten weeks of great suffering. The nerves and ganglia throughout the abdomen were found to be in a highly inflamed condition; marked degeneration in some of the nerve tissue was also seen.

(76) Tumour of the Optic Thalamus.

Dercum (*Journal of Nervous and Mental Disease*, 1890, xv, p. 506) reports the case of a gliosarcoma growing in the left thalamus of a man aged 39. His symptoms, which lasted two years, began with giddiness and headache; then followed motor and sensory right-sided paralysis, without any affection of the face. There was also a peculiar athetotic kind of movement of the right arm and increase of the patellar reflex on the right side. There was right-sided lateral hemianopsia; the left eye had a considerably greater diminution of the field of vision than the right, and an evident Wernicke's pupil reaction, that is to say, there was inactivity of that half of the pupil on the same side as the hemianopsia.

(77) A Case of Sporadic Cretinism.

Dr. Thomson (*Edin. Med. Journ.*, September, 1890) showed at a meeting of the Royal Medico-Chirurgical Society of Edinburgh a female child, aged 19 months, in whom cretinism was developed. The most striking feature was the œdematous, almost myxœdematous, state of the whole of the right side of the patient's body. The face, on the contrary, was somewhat œdematous on the left side. The abdomen of the child was large and prominent. The thyroid gland could not be felt, and there was great increase in the amount of adipose tissue in the axillary and subclavicular spaces, the mental condition being weak and strange.

SURGERY.

(78) Ligature of the Saphena Vein in Cases of Varicose Veins.

Professor Trendelenburg, of Bonn, in a contribution to the last number of the *Beiträge zur klinischen Chirurgie* (Tübingen) advocates double ligature and division of the large saphena vein in the treatment of varicosity of the lower limb involving both the trunk and branches of this vessel. In some remarks on the pathological anatomy of varicose veins it is pointed out that the most prominent and dilated portions of the affected vessel are found below, and not, as is generally supposed, above the valves. The walls of the vein, being weaker here than at other point, yield most readily to the pressure of the blood when the valves cease to act. According to Trendelenburg, most of the blood which fills the dilated trunk and branches of a varicose saphena vein is derived from above, and has descended from the iliac veins and the vena cava, and but a small portion of it comes from the capillaries of the foot and leg. When the subject of varicose veins exchanges the horizontal for the vertical position a large quantity of blood at once descends from the large veins of the abdomen into the dilated veins of the lower extremity. It is this free downward flow of blood along large and dilated vessels deprived of valves that causes the profuse and dangerous hæmorrhage so frequently produced by a breach of the surface of the leg when in a condition of varicosity. The conclusion that the troubles and dangers of those suffering from varicose veins of the lower limb are due for the most part to the fact that the varicose branches of the great saphena, in consequence of associated dilatation of the trunk of this vein, are no longer separated from the vena cava by valves, has led Trendelenburg to treat varicosity by permanently obstructing the saphenous trunk at one point with the view of preventing the descent of blood from the abdomen, and thus relieving the veins of the leg and foot from the abnormal pressure. After obstruction of the flow of blood through the main trunk of the great saphena, the venous circulation will be maintained by communicating branches between the superficial and deep veins. Reference is made to a series of cases in which good results followed such treatment, which consists in exposure of the vein near the saphenous opening, in the application of two catgut ligatures, and in the division between these of the vessel. It is acknowledged in this paper that occlusion of the great saphena is by no means a novel plan of treatment in cases of varicosity of the lower extremity. It was practised by Paulus Ægineta, and advocated by Ambroise Paré, and at the end of the last century Sir Everard Home performed this operation in twelve cases with very unfavourable results.

(79) Jejuno-Ileostomy.

In the *New York Medical Journal* of December 20th, 1890, Dr. Thomas H. Russell, of Yale Uni-

versity, reports a case of complete and permanent recovery by jejuno-ileostomy with Senn's bone plates in intestinal obstruction, due to intussusception and sloughing of the intussusceptum. The patient was a boy aged 15, who, after an attack of acute obstruction, had been confined to bed for ten months with increasing debility and emaciation, and recurring violent and painful peristalsis. Soon after the primary attack of obstruction a soft fleshy mass had been noticed in one of the stools. Dr. Russell performed laparotomy on August 17th, 1889, and found the obstruction near the junction of the upper and middle thirds of the small intestine. Here the intestine was so extremely contracted that its diameter was not more than a quarter of an inch, and it was firmly bound down by a strong band of old adhesion to the wall of an adjacent loop of intestine. As the obstruction was evidently an old one, and it was impossible to restore the calibre of the gut at that point, an intestinal anastomosis, as suggested by Dr. Senn, was established. The recovery was rapid, perfect, and permanent. A large normal stool was passed on the fifth day, and the bowels were afterwards moved regularly. Fifteen months after the operation the boy was in good health, and was strong and able to do work. This, Dr. Russell believes, is the most successful case of the kind that has hitherto been recorded. The commencement of the disease, he believes, was an intussusception. The soft fleshy mass passed in one of the stools about a month afterwards was very probably the intussusceptum, which had sloughed away, and the subsequent stenosis and adhesions may be regarded as results of this process.

(80) Resection of the Head of the Femur in Irreducible Luxation.

A CASE has recently been reported by M. Ricard to the Société de Chirurgie of Paris, in which the following operation was performed for the relief of the pain and lameness caused by an irreducible dislocation, of eight months' standing, of the head of the femur on the dorsum ilii. The head of the femur, having been exposed by a posterior incision, was excised, and then, after the acetabulum had been cleared by dissection of cicatricial and fibrous structures, the neck of the bone was laid in this cavity. The patient made a good recovery, and at the time of his discharge was able to walk well. In a report on this case, M. Nélaton expressed himself as being very well satisfied with the results of this treatment, which, in his opinion, is superior to simple arthrotomy.

MIDWIFERY AND DISEASES OF WOMEN.

(81) Danger of Vaginal Injections.

DR. ROULIN (*Journal de Médecine de Paris*, December 14th, 1890) describes three cases where women suffered from severe symptoms after the use of vaginal injections, administered by themselves when in a sitting position. The first used the douche can, fixing it rather high on the wall. Immediately after the injection violent hypogastric and lumbar pains set in, followed by vertigo and vomiting. The abdomen was not sensitive on pressure, though pain was intense. Metrorrhagia followed and lasted for two or three days, but the pain ceased in twenty-four hours. The second case was almost precisely similar, excepting that the patient had used a hand syringe, and the symptoms were less severe. The third case also used a hand syringe. She felt a pain like a blow across the belly, but continued the injection; when it was ended lumbar and abdominal pains came on severely, with rigors and chattering of the teeth, but no vomiting. The symptoms recurred on the next day when the patient got up, but on the third day she felt well and free from pain. Dr. Roulin employs laudanum enemata for these cases. The cause of the pain is obscure. The fluid rushing into the uterine cavity may act as a foreign body and set up conditions sometimes provoked by catheterism. The admission of air into the uterine sinuses has been, according to Depaul, the cause of sudden death during douching of the cervix to produce abortion. Dr. Roulin believes that water may have entered in his cases. He insists that patients must be taught how to administer vaginal injections to themselves. The patient must lie on her back and only introduce the nozzle for a short distance; nor must she play too strong a jet of fluid into the vagina.

(82) Arsenite of Copper for After-Pains.

DR. BOARDMAN REID (*N.Y. Times and Register*, December 6th, 1890) has employed cupric arsenite for relief of the pains following labour. A woman, aged 32, had persistent and severe after-pains during her fifth confinement, which entirely resisted all the usual remedies. The trouble had gone on some five days, and was seriously menacing the patient by interfering with her rest and nutrition. Dr. Reid remembered that, in his hands, arsenite of copper in minute doses had proved valuable as an antispasmodic in cholera morbus and colic. Deeming, therefore, that the salt might be of service in the spasms of uterine muscular tissue which caused the after-pains, he ordered it in doses of one-thousandth of a grain every half hour. Relief was rapid and complete. In a second case relief was even more rapid; morphine had, as in the first, been administered with unsatisfactory results. Two tablets containing one two-hundredth of a grain each were dissolved in a small half-tumbler of water, and one teaspoonful was given every half hour. In a third case, where the salt was given pure in a dose of the same strength as in the first case, relief was also prompt; in this instance opiates were contraindicated owing to the condition of the patient's kidneys. Another case, under the care of Dr. W. B. Stewart, was cured of after-pains by doses of the pure salt. Two other cases, however, received no benefit from arsenite of copper. The first was completely relieved by morphine, the second by chlorodyne. In these cases, Dr. Reid observes, the tablets of the arsenite administered to the patient were new samples, not from the manufacturer who supplied the salt in the other cases. It was found almost impossible to make them dissolve, and this might have accounted for the failure of the remedy in these cases.

(83) Congenital Hydrocele in Women.

SMITAL, of Gray (*Centralbl. f. Gynäk.*, Dec. 20th, 1890), has collected 41 cases of this rare affection, and noted them in the *Wiener klin. Wochenschr.*, Nos. 42, 44, 1889. He now adds another instance under his own observation. A female servant aged 36, had noticed for six years that when hard worked a small swelling developed in the right groin; it gradually attained the size of a walnut. No inflammatory complications ever occurred, but all attempts at reduction failed. In February, 1889, she was normally delivered of her first

child; the growth thenceforward increased rapidly till it became as big as a goose's egg. On June 28th, 1889, after hard work, a swelling appeared in the left groin, followed by symptoms of strangulation. The hernia—as it proved to be—was reduced in hospital. Dr. Smital then examined the swelling on the right side. A large elastic tumour occupied the upper part of the right labium majus. It was broader below than above; its long axis was continuous with that of the right inguinal canal. It was irreducible, and there was no resonance on percussion nor impulse on coughing. The cyst—as it proved to be—was exposed by an incision in its long axis. It was dissected away from its relations; posteriorly and internally it was connected with the round ligament. The pedicle of the cyst entered the inguinal canal; it was tied and the cyst was cut away. Then Dr. Smital found that a cæcal prolongation of the peritoneum, like the finger of a glove, extended into the pedicle of the cyst. The wound was drained with strips of iodoform gauze, and its edges united by a continuous suture. It healed by first intention. The collapsed cyst was two inches and a half long. In its lower part its inner wall was smooth. Several trabeculæ passed across its cavity, which was completely cut off from the peritoneal process by a thin membrane. The fluid from the cyst amounted to about 6 ounces; it was clear, serous, and neutral in reaction, its specific gravity 1015, and it contained 3.5 per cent. albumen. Had there been inflammation of the congenital hydrocele as well as strangulated hernia on the left side, Dr. Smital considers that the hydrocele might have been diagnosed by its shape, for it was nearly always broadest below and conspicuously narrower at the external ring, and also by the right canal being empty, although local peritonitis might be present. According to current surgical principles, Dr. Smital contends that a congenital hernia should always be dissected away, and only when its walls are intimately adherent to surrounding structures should it be merely incised and its cavity packed with dressing.

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(84) The Induction of Premature Labour.

Professor Balandin (*Annales de Gynécol.*, October, 1890) read at the Berlin Congress a thesis on forty-three induced labours, undertaken by himself with the sole assistance of an experienced midwife. Strict antiseptic precautions were enforced, and the two methods habitually employed for inducing labour were the introduction of the bougie and puncture of the membranes. As auxiliary measures, electricity and douching were practised. Injections were thrown up between the uterus and the ovum, either 2 per cent. boric acid solutions being used, or else sterilised water at a temperature of about 100° F. The bougie often acted but slowly, after several days or weeks, or even not at all. Its efficacy appeared to diminish with the rigour of the antiseptic precautions. On the other hand, it never set up febrile reaction, nor caused any other complications. After puncture of the membranes, uterine contractions did not invariably set in. This was mostly the case when the uterus was but slightly excitable, and had relaxed parietes. In one case, intermittent flow of the waters continued for eight days after puncture, without contractions setting in. In an instance of this kind, more radical courses were needed. Dr. Balandin usually dilated the cervix with his finger, turned by the combined external and internal method, drew down a foot, and slowly extracted the fœtus. Not a single mother was lost. No reaction even followed the turning cases. In the last series of twenty cases, nineteen children were saved.

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(85) Prolonged Lactation: Long Interval between Pregnancies.

M. Loviot (*Archives de Tocol.*, November, 1890) read before the Obstetrical Society of Paris notes of a case where a woman, aged 39, had borne her first child when 23 years of age and suckled it for thirty months. During that long space of time no period occurred. Recently, sixteen years after the birth of the first child, she was safely delivered of her second, which she was able to suckle.

PHARMACOLOGY AND THERAPEUTICS.

(86) Koch's Treatment: General Results.

In a supplement to the December number of the *Bristol Medico-Chirurgical Journal*, Drs. Markham Skerritt and Barclay Baron give an account of their observations of Koch's treatment during a recent visit to Berlin. They reached the German capital on December 5th, and stayed there until December 13th. They saw a very large number of cases presenting the results of treatment under the most varied conditions: at the Charité, under Leyden, Fräntzel, and Gerhardt; at the Lazarus Hospital, under Langenbuch; and in the clinics of von Bergmann, B. Fraenkel, Cornet, and Levy. They also had an opportunity of seeing Koch's original cases at a demonstration given to the Hufeland Society, by Professor Paul Guttmann, at the Moabit Hospital. A full description of the method of procedure, and of the immediate effects of the injections in different forms of tuberculous disease is given. The types of reaction are classified as follows: (1) Typical, marked reaction to small early dose, diminishing reaction to the same or even to increasing doses. (2) Increased reaction to the same or a diminished dose. (3) Prolonged or deferred reaction. (4) Effect of reaction on hectic; (*a*) *favourable*, when there is a tendency to the substitution of the reaction type for the hectic type, and (*b*) *negative*, when the hectic persists unaffected by reaction. (5) Fever originated by injection. These various types are illustrated by cases and charts, and the cause of the diversity of action of the remedy in different cases is discussed. With regard to the results of the treatment in tuberculous disease of bones and joints, Drs. Skerritt and Baron say that the surgeons informed them that they had never seen, under any treatment, any approach to the rapidity with which improvement took place under the injections. They themselves saw cases where sinuses in connection with diseased bones and joints, which had long remained open in spite of all previous treatment, rapidly and completely closed. With regard to glands it is pointed out that the usual local change is swelling and tenderness during reaction, followed by gradual diminution in size. Suppuration does not commonly occur. In the larynx the local reaction may produce increase of pain in swallowing, increase of cough and expectoration, a feeling of dryness and constriction, greater hoarseness, perhaps aphonia, and sometimes local pain. Contrary to what the authors anticipated, they found that, as a rule, no serious obstruction to

breathing was produced, and in many cases none at all. With regard to the lung, they state that little can be said as to improvement in physical signs; "in some cases *râles* and dulness are said to have diminished, and bronchial breathing to have been replaced by vesicular, but as yet time is too short to allow of decided evidence on this point." They add that Koch claims to have completely cured two phthisical patients, with one of whom they had the opportunity of speaking. They also saw a patient in whom, during three weeks' treatment, the disease markedly extended in both lungs, and a cavity formed; dyspnœa, absent before, made its appearance; bacilli, previously few in number, became numerous, and the sputum was increased in amount. One of the cases seen by them, in which there was most marked lung reaction, had been examined again and again without the detection of a single suspicious sign. They also saw many patients in whom the injection revealed in very varied parts previously unsuspected tubercle. In no case, therefore, even the least suspicious, should an injection be made without the most careful and thorough preliminary examination, and the greatest caution should be observed as to dosage. In tuberculosis of the lungs and larynx the initial dose should be one milligramme, which is gradually increased, one or more "fever free" days being allowed between the injections. For purposes of diagnosis absolute reliance cannot be placed upon the result of a single injection. Skerritt and Baron saw a case of established phthisis, with bacilli, in which no reaction occurred until the dose had reached one centigramme, and they were informed that this was by no means a solitary instance. On the other hand reaction occurred in patients who otherwise presented no evidence whatever of tuberculosis; as, for instance, in a girl with post-scarlatinal nephritis. They sum up as follows:—"The evidence at present at our disposal warrants the conclusion that the beneficial effects of the remedy is undoubted in tuberculosis of the skin, bones, joints, glands, and throat. With regard to pulmonary phthisis, whilst there is good reason to hope that in suitable cases a most satisfactory result may be obtained from this treatment, sufficient time has not as yet elapsed to allow of the formation of any accurate estimate of its value."

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(87) Koch's Remedy in Surgical Tuberculosis.

Dr. Eugen Hahn reports (*Deutsche med. Wochen.*, January 1st, 1891) 59 cases in which Koch's treatment was tried in the Friedrichshain Hospital at Berlin, from November 21st up to December 23rd. The injections given amounted in all to 300. Hahn found Koch's statements as to the action of the remedy confirmed. The cases treated embraced various forms of surgical tuberculosis, especially bone and joint disease, glandular affections, and lupus. Excluding 27 cases which had been too short a time under treatment, or were otherwise unsuitable to form the basis of a critical estimate of the value of the remedy, the results in the remaining 32 were as follows; 16 were considerably, and 12 appreciably, benefited; in 4 no change was perceptible. In cases of tuberculous disease of the bones and joints the results were better when sinuses existed than in others in which there was neither sinus nor surgical opening. In one case, in which the knee-joint was resected, reaction, which had been very powerful before the operation, entirely ceased after it. In a case of sarcoma of the larynx, very marked local and general reaction followed the injection. Dr. H. Schmid reports (*ibid.*) the effects observed in 60 patients in the Bethany Hospital at Stettin. Four hundred injections in all were given, and the results so far are said to be satisfactory, and to justify the best hopes for the future. Professor Socin of Basel (*Schweiz. Corresp. Bl.*, No. 1., 1891) says that having tried the method in 20 cases, his general impression at present is one of doubt whether Koch's fluid, in spite of the wonderful precision of its physiological action, is really to be regarded as a remedy. He especially desiderates accurate reports of experiments with the fluid on animals, as by means of these alone can the necessary information as to the internal effects of the treatment be obtained. He believes that in most cases of surgical tuberculosis the knife will still, as heretofore, be the *ultima ratio* of the practitioner, but at the same time he thinks there can be no doubt that the new method will enable surgeons to operate with greater certainty and with more satisfactory results.

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(88) Koch's Treatment in Skin Disease.

On January 8th, M. E. Vidal presented to the Société de Dermatologie, in the name of the committee appointed to investigate the subject, a preliminary report on the results of Koch's treatment as observed in the Hôpital Saint Louis (*Sem. Méd.*, January 14th, 1891). The number of patients under treatment is thirty-two. The first injections were made on November 20th. In most of the cases the number of injections given has been from four to six, an interval of from four to eight days being allowed between them. In the present communication M. Vidal confines his attention to three points, namely, the irregularity of the general reaction, its dangers, and the precautions necessary to prevent or minimise these dangers. With regard to the first point, he said the reactions as seen by them were far from having the regularity of type described by Koch. There was no constant relation between the local and the general reaction. In several patients they saw intense reaction follow a dose of half a milligramme, even after several injections. The duration of febrile reaction was also very irregular. As a rule, defervescence occurred within twenty-four hours, but it was quite common to see the temperature go up again in the afternoon of the following day, sometimes reaching a maximum degree higher than that of the first day. In some cases this afternoon rise took place on the third and fourth days also. With regard to the dangers of the treatment, M. Vidal points out that the fluid is a very energetic pyrogenic agent, which sets up congestion and inflammation in the whole economy. This effect, however, is so unequally distributed that it is difficult to foresee what organs will be attacked and what intensity of reaction will be displayed. Not only are the effects different in different patients, but in the same patients at different times. Organs previously diseased in any way, even though free from all trace of tubercle, are particularly liable to become the seat of congestion, and even viscera to all appearance perfectly healthy may be greatly engorged. Congestion of the bronchial tubes and of the bases of the lungs is frequent during the first two days. Several times the members of the committee found symptoms of myocarditis and endocarditis, enlargement of the spleen, albuminuria, and in

three cases hæmaturia which lasted three or four days. Twice they observed a swelling like erysipelas attack the cheek, the forehead, and a portion of the scalp in women suffering from lupus, who had already had erysipelas. The condition lasted six days in one case and five days in the other. No streptococci were found in the blood, and attempts at cultivation proved fruitless. With regard to the precautions to be observed in carrying out the treatment, the committee gradually diminished the initial doses, and lengthened the interval between the injections. They begin with half a milligramme, increasing the dose by half a milligramme at a time, until they get a reaction in which the temperature rises to 39° C. They keep to the same dose as long as that temperature is reached. M. Vidal promises a full report from each member of the committee for the next meeting of the Society.

(89) Koch's Treatment: Experiments on Cattle.

PROFESSOR BOLLINGER, of Munich, gives (*Münch. med. Wochenschr.*, January 13th, 1891) a summary of some experiments with Koch's fluid made in the Veterinary Institute at Dorpat by W. Gutmann on three tuberculous cows. The disease was diagnosed partly by physical examination, partly by the presence of tubercle bacilli in the bronchial mucus and in the milk, and partly by changes in the lymphatic glands. Relatively large doses were employed, 0.1 g. being injected into one animal, 0.2 g. into a second, and 0.3 g. into a third. The injections were made behind the shoulder-blade. The temperature was taken every hour on the day of the injection and the following day and night. In all three animals the temperature began to rise about eleven hours after the injection. The reaction corresponded to the amount of the remedy exhibited, the maximum attained in the first animal being 40° C., in the second 40.8°, and in the third 41.7°. The duration of the fever in the three cases was four, nine, and ten hours respectively. In the first cow another injection of 0.3 g. was given four days after the first; reaction came on in from eleven to twelve hours and lasted four hours. In all three animals during the febrile period there was some difficulty of breathing and loss of appetite, but the next day they took their food well and rumination was active as usual. No rise of temperature followed the injection of 0.3 g. in two healthy bulls which were used as "control" subjects. Twenty-four hours after the injection they were slaughtered and all the organs were found to be perfectly normal. Gutmann, therefore, concludes that Koch's remedy is a most valuable aid to diagnosis in the case of cattle suspected of tubercle. In this view Professor Bollinger agrees with him.

PHYSIOLOGY.

(90) The Alkalinity of the Blood when concentrated by the Action of Large Doses of Sodic Sulphate.

J. SWIATECKI (Hoppe-Seyler's *Zeitschr. f. physiol. Chem.*, November, 1890) discusses this question. In 1850 C. Schmidt made the observation that in the algid stage of cholera the blood loses its alkalinity so markedly that in many instances it may even redden blue litmus paper—an observation that has often since been confirmed, as, for example, by the French Commission during the cholera in Egypt in 1883. Mya and Tassinari, who have investigated the different diseased processes which affect the alkalinity of the blood, have also studied its behaviour under the influence of certain purgatives, such as infusion of senna, magnesia, and sodic sulphate, but without obtaining any positive results. The author accordingly pursued in the University of Warsaw a series of researches upon dogs with Glauber's salts, and as the result of them he concludes that the alkalinity of the blood increases when its specific gravity is raised by means of large doses of these salts; that this rise can be explained by the increased transudation of acids, as well as alkalies, from the blood into the intestine in accordance with the laws of osmose; and that the attempt to explain the increased alkalinity after the use of mineral waters exclusively through the passage of basic salts out of the intestine into the blood is not satisfactory.

(91) Electromotive Phenomena produced by the Respiratory Movements.

THAT the heart shows a diphasic variation of its electro-motive force during systole has been substantiated by numerous observers. Hamburger, of Utrecht (*Centralblatt f. Physiol.*, Band iv, p. 129, 1890) on applying electrodes at the base and apex of the heart respectively, found that with a capillary electrometer he obtained not only the variation of the electromotivity from the contracting heart, but that with every artificial inflation of the lungs the meniscus of mercury of the electrometer showed an increase of negativity. This varied with the respiration, and could be obtained when one of the electrodes was placed on other parts of the body. On raising the heart so as to prevent the friction between it and the lungs, the oscillations vanished. When the heart ceased to beat, artificial respiration gave relatively large excursions of the electrometer. It was shown that the lungs also exhibit electrical phenomena by being rubbed against the heart. If the heart and lungs be excised, and both allowed to die, on placing one electrode on a lung and the other on the heart and performing artificial respiration there were marked variations of the electrometer. It is evident, therefore, that besides these well known electromotive phenomena connected with the heart, there are variations of electromotivity due to purely mechanical causes, namely, the friction between the lungs and the heart or the pericardium.

ANATOMY.

(92) Innervation of the Thenar Eminence.

IN the *Bulletins de la Société Anatomique de Paris* Dr. Lejars gives an account of the nerve supply of the thenar eminence. After remarking upon the anomalies of nerve supply disclosed by accidental divisions of nerves, and especially that after section of the median the thenar eminence retains its sensibility, and the thumb retains its power of abduction, he goes on to quote the current accounts of the nerve supply of the eminence. This is usually considered to come from the terminal branch of the musculo-cutaneous, the radial only supplying the dorsum of the thumb and fingers. However, if the anterior branch of the radial be exposed at the point where it crosses the tendons of the "anatomist's snuff box" it will be found at the level of the base of the first metacarpal bone to divide into three branches; the most internal goes to the

contiguous sides of the thumb and index finger, the middle one to the radial side of the dorsum of the thumb, and the third to the thenar eminence, as far as the metacarpo-phalangeal joint. Upon the eminence this branch makes a regular plexus, which communicates above with the musculo-cutaneous nerve. The next anomaly which is observed after section of the median—namely, continuance of the power of abduction—is due to the fact that the abductor receives several twigs from the anterior branch of the radial. The main one arises from the radial just above the thenar branch, and at once plunges into the abductor at its superior border; it also sends a branch to the radio-carpal joint. In addition, the thenar branch of the radial, after supplying the abductor pollicis, sends branches into the subjacent muscle. Thus the muscles of the eminence are supplied both by the median and by the radial.

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(93) Subserous Connective Tissue.

Messrs. William Anderson and G. H. Makins (*Journal of Anatomy and Physiology*, October, 1890), discussing "The Planes of Subperitoneal and Subpleural Connective Tissue, with their Extensions," conclude that in these endothoracic and intra-abdominal fasciæ we have a tissue which forms sustentacular sheaths for the vessels and nerves and various organs within the trunk, and which follows them into the intermuscular spaces of the trunk, neck, and extremities. This tissue binds down the invested structures in such a manner as to maintain their due relations to each other and to the walls of the containing cavities, fills up the irregular spaces between them, and conveys to them their vascular and nervous supply. It affords a medium of communication between visceral and parietal vessels and between the vessels of different organs. It has important suspensory functions in connection with the membranous and solid viscera, especially in the abdomen, and it serves as a storehouse for fat. Surgically, according to these authors, it explains the presence of mysterious deep fascial layers, the identity of which has often exercised the minds of operators in the course of the incisions for colotomy and nephrotomy. The relations of these endothoracic and intra-abdominal fasciæ to certain structures outside the thorax and abdomen may account for pleural complications after axillary abscess or ligature of the subclavian artery, and for peritonitis following castration. The laminated structure of the tissue which forms these fasciæ exercises an important influence upon the course of pathological exudations, especially in the mediastina and pelvis. Undue laxity of the tissue may favour displacements of certain organs, as in movable kidney, and also in hernia, as Mr. Lockwood has pointed out. The extrusion of the tissue through normal or adventitious apertures in the thoracic and abdominal walls may open the way for hernial protrusions, or may itself constitute a kind of hernia, as in the linea alba and elsewhere. A hernia may be reduced *en masse* between its layers. The tissue may serve as a nidus for fatty tumours and other morbid growths. This memoir contains much food for reflection; much knowledge which the physician and surgeon may utilise. The communication between visceral and parietal vessels, by means of this tissue, is of special interest. It serves to account for the sympathy between the integument and immediately subjacent organs in many diseases, and may explain, to a great extent, the value of poultices in the treatment of inflammation of deep viscera.

BACTERIOLOGY.

(94) Typhoid and Pseudo-Typhoid Bacilli in River Water.

Dr. Cassedebat (*Annales de l'Institut Pasteur*, No. 10, October, 1890), following up Rietsch's work on the river waters of Marseilles, gives the result of an examination of seventy specimens of water from which 250 cultivations were made, with the view of determining whether the Eberth bacillus is to be found in the waters of the Durance which supply a part of the city where typhoid fever is endemic and often epidemic. In no case was he successful in finding the Eberth bacillus, but he was able to separate three bacilli—"pseudo-typhoid bacilli"—which resemble the typhoid bacilli in many respects; like it, they can all withstand the action of pretty strong carbolic acid. They all present clear spaces or deeply-stained masses, which might readily be taken for spores; but they and the true typhoid bacillus containing these bodies are all killed at a temperature of a little over 45° C. They stain equally badly by Gram's method. They have a lateral and oscillatory motion as well as the forward motion. The plate cultivations are so much alike that unless all four can be seen together it is difficult to distinguish one from the other. On potatoes, in broth, and in milk, they are alike, except that they develop with different degrees of rapidity and vary somewhat as regards the alkalinity and acidity of their products at the end of about thirty days, and also as to the degree and time of appearance of the turbidity produced in broth. There are differences, however, to be observed in these organisms grown in broth or milk to which small quantities of the various aniline staining reagents have been added. The ordinary cultivation methods are sufficient to distinguish these four forms from ten others (a list of which is given in the paper) for which the typhoid bacillus has at times been mistaken. None of the pseudo-forms are quite so toxic to white mice as the true form, and one of them is quite innocuous. Although Cassedebat was not able to find the true form in water taken from the water supply which was most open to contamination, he found that this was not because bacilli could not live in water, as in distilled water, to which a cultivation had been purposely added, he could easily distinguish its presence at the end of forty-four days, and when added along with half-a-dozen other forms he could find them at the end of seventeen days. He comes to the conclusion, therefore, that the true typhoid bacillus does not occur in water so frequently as is sometimes represented, and that one or other of the forms of pseudo-typhoid bacilli has in certain cases been mistaken for it.

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(95) Micro-Organisms of Diphtheria.

Dr. Franz Tangl (*Centralbl. für allgemeine Pathologie u. pathologische Anatomie*, Band i, No. 25, December 1st, 1890) gives a preliminary communication on 18 cases of diphtheria that he examined, in all of which he found the Klebs-Löffler bacillus, 10 after death and 8 during life. He found that cultivated in glycerine agar there was a luxuriant growth, but the bacillus soon lost its virulence. In almost all cases there were found, along with the characteristic bacillus, streptococci, these latter being found especially

in the broncho-pneumonic patches; whilst the bacilli were more frequently found in the branches of the bronchi, even in the very minute ones. Inoculated on the slightly abraded mucous membrane of rabbits and pigeons, the organism gave rise to the formation of false membranes from which the bacilli could again be cultivated. Paralysis made its appearance after both intra-tracheal and subcutaneous injections of broth cultivations, either filtered or unfiltered, and in one case, where the membrane was very profuse in the pharynx, and even in the smaller bronchi, the toxine could be actually demonstrated as present in the fibrinous mass, by macerating pieces of the false membrane for twenty-four hours in distilled water in an ice cupboard. This fluid, filtered through porcelain and injected into rabbits and pigeons, induced either death or paralysis, indicating the presence of toxine in the injected fluid, as there were no bacilli present. From the presence of a stalk of grass in the pharynx of one of the animals that had been inoculated, the author comes to the conclusion that in this case, at any rate, there was paralysis of the glosso-pharyngeal area. In one case albumen was found in the urine. A number of control observations were made in other diseases, but always with negative results as regards the Klebs-Löffler bacillus. The author believes that in these diphtheritic membranes the degenerated epithelium always forms a very large part of the glittering ridges and scales in the mass of fibrinous exudation; that where epithelium is absent there are no hyaline trabeculæ, but merely a fibrinous network, and that the clearer the exudation the more important is the part played by the coagulated fibrin in the false membrane.

(96) Virulence of Tubercle Bacillus.

Professor A. Maffucci, in a preliminary communication (*Centralbl. für allgemeine Pathologie u. pathologische Anatomie*, Band i, No. 26, December 15th, 1890) concludes that all Hammerschlag's experiments with the alcoholic extracts of pure cultivations of tubercle bacillus cannot, in face of the clinical nature of tuberculous disease in the human subject, be looked upon as conclusive. There is, however, he considers, some poison developed by the tubercle bacillus, especially in older growths, which by its action produces marasmus, apparently by interfering with the nutrition of the cellular elements of the body. What relation the bacilli and their products bear to inflammation, fever, marasmus, and degeneration he is not prepared to state; but the experiments that he has recently made confirm those that he published in 1879, in which he found that the tubercle bacillus from a mammalian, when injected into a laying fowl, caused the embryos from the eggs to die with all the characteristic features of a marasmus. He has observed the same thing in the hens themselves when they have been inoculated with "perlsucht" and even with active cultivations of the tubercle bacillus from mammalian animals; whilst, from clinical observation, he is also of opinion that the caseous masses in tuberculous individuals are the exciting cause of the marasmus that is so frequently met with in patients affected with tuberculous glands, bones, or joints, and in cases of tuberculous phthisis. He has now carried on a series of experiments on guinea-pigs with pure cultivations of tubercle bacillus (from mammalian animals) which had been allowed to grow for one, two, three, or six months on consolidated blood serum to which glycerine had been added, or on fluid blood serum alone. The culture was then sterilised at a temperature of 65° to 70° C., continued for one or two hours, or by intermittent sterilisation. Cultures of more than six months' standing were found to be already sterile, and were therefore not specially treated. Any of these sterilised cultures introduced into guinea-pigs induced, in from fourteen days to six months, marked wasting, but no tubercle bacilli could be found by histological examination or by cultivation. There was usually congestion of the lung and of the kidney, the splenic follicles were wasted, the pulp was also atrophied, but was usually somewhat congested, and considerable quantities of pigment might be observed in the pulp cells, and even lying free outside them. The atrophy, however, was almost invariably well marked, and the liver cells were usually considerably wasted. He concludes that this toxic substance is not destroyed in the body of an animal which dies from marasmus, and he holds that these observations must have a very important bearing on the ultimate success or failure of Koch's treatment.

DERMATOLOGY.

(97) Etiology and Pathology of Rhinoscleroma.

Pawlowsky (*Centralblatt f. allgemeine Pathologie u. pathologische Anatomie*, vol. i, September, 1890) has had occasion to examine three cases of rhinoscleroma, and obtained typical cultures of the bacillus of Frisch, by which he was able to prove that the bacillus is non-motile. On potato the bacilli showed various forms of evolution. They grow rapidly, and become stained on the nutritive medium when it is coloured by aniline. They do not form spores, but sometimes small granules. The bacilli of rhinoscleroma are pathogenic for animals, and in the animal tissues are found the phenomena of phagocytosis and a chronic process of granulation with production of large epithelioid cells and vacuoles. Lastly, there is found in all animals what in rhinoscleroma is characteristic—the formation of hyaline bodies. From his researches the author concludes that the hyaline matter in rhinoscleroma is a product caused by the bacilli, which consists of degenerated bacilli and of modified protoplasm. Perhaps the hyaline material is formed in the same manner in other infectious processes.

(98) The Fungus of Favus.

Dr. F. Kral, of Prague (*Brit. Journ. of Derm.*, September, 1890), related, at the Berlin meeting of the International Medical Congress, that in order to procure pure cultivations of the fungus of favus he rubbed the favus crusts with sterilised sand, thus finely dividing them. Cultures on plates were made, and the fungus isolated. The author's conclusions are: (1) The favus fungus is always one and the same fungus. (2) This fungus is morphologically and physiologically (in cultures) different from the fungus heretofore regarded as the fungus of favus. (3) Its pathogenicity for man is established through successful inoculations. (4) With the fungus from the scalp typical favus of the body was produced. (5) In the experimentally produced favus the fungus described was always the only fungus present.

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